

<b>REQUEST FOR QUOTATION</b> (THIS IS NOT AN ORDER)			THIS RFQ <input type="checkbox"/> IS <input checked="" type="checkbox"/> IS NOT A SMALL BUSINESS SET-ASIDE		PAGE 1 OF 10
1. REQUEST NO. N65540-04-Q-0545	2. DATE ISSUED 04 SEP 08	3. REQUISITION/PURCHASE REQUEST NO. 91110 41701749	4. CERT. FOR NAT. DEF. UNDER BOSA REG. 2 AND/OR DMS REG. 1		RATING
5a. ISSUED BY CONTRACTING OFFICER NSWC CARDEROCK DIVISION			6. DELIVER BY (Date) 04 DEC 15		
5b. FOR INFORMATION CALL (NO COLLECT CALLS)			7. DELIVERY <input checked="" type="checkbox"/> FOB DESTINATION <input type="checkbox"/> OTHER (See Schedule)		
NAME 5001 S. BROAD STREET, CODE 335 PHILADELPHIA, PA 19112-1403 ELIZABETH RAINEY		TELEPHONE NUMBER AREA CODE 215 NUMBER 897-7061 FAX: 215 897-7059		9. DESTINATION N65540	
8. TO:			a. NAME OF CONSIGNEE		
a. NAME		b. COMPANY		b. STREET ADDRESS	
c. STREET ADDRESS			1601 LANGLEY AVENUE BLDG 542 E		
d. CITY			c. CITY PHILA.		
e. STATE		f. ZIP CODE		d. STATE PA	e. ZIP CODE 19112-5051
10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5A ON OR BEFORE CLOSE OF BUSINESS (Date) 04 SEP 30			IMPORTANT: This is a request for information and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5A. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotations must be completed by the quoter.		

11. SCHEDULE (Include applicable Federal, State and local taxes)					
ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
0001	REQN. NO. 91110 /41701749 ITEM NAME: AIR INTAKE ACOUSTICALLY LINED DUCT TRANSITION PIECE (FIGURE 2) SEE ATTACHED SPECIFICATION FOR ALL REFERENCES TO FIGURES.	1	EA		
0002	REQN. NO. 91110 /41701752 ITEM NAME: AIR INTAKE UNLINED DUCT (FIGURE3 )	1	EA		
0003	REQN. NO. 91110 /41701753 ITEM NAME: AIR INTAKE UNLINED DUCT SPOOL WITH ONE LOOSE FLANGE FOR FIELD FIT-UP (FIGURE 3)	1	EA		
0004	REQN. NO. 91110 /41701754 ITEM NAME: AIR INTAKE BELLMOUTH (FIGURE 4)	1	EA		
0005	REQN. NO. 91110 /41743700 ITEM NAME: RELEASE FOR MANUFACTURE DOCUMENTATION (SECTION 6.0)	1	EA		
0006	REQN. NO. 91110 /42043833 ITEM NAME: BOLTING HARDWARE & GASKETS	1	EA		
0007	REQN. NO. 91110 /42043835 ITEM NAME: COMPLETED QA PLAN	1	EA		

12. DISCOUNT FOR PROMPT PAYMENT	a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS	
				NUMBER	PERCENTAGE

NOTE: Additional provisions and representations <input type="checkbox"/> are <input type="checkbox"/> are not attached					
13. NAME AND ADDRESS OF QUOTER			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION		15. DATE OF QUOTATION
a. NAME OF QUOTER					
b. STREET ADDRESS			16. SIGNER		
c. COUNTY			a. NAME (Type or print)		b. TELEPHONE
d. CITY			e. STATE		f. ZIP CODE
			c. TITLE (Type or print)		NUMBER

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VENDOR:

SECTION F TIME OF DELIVERY

DELIVERIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS

ITEM	QUANTITY	DELIVERY REQUIRED
0001	1 EA	04-DEC-15
0002	1 EA	04-DEC-15
0003	1 EA	04-DEC-15
0004	1 EA	04-DEC-15
0005	1 EA	04-DEC-15
0006	1 EA	04-DEC-15
0007	1 EA	04-DEC-15

52.213-4 Terms and Conditions--Simplified Acquisitions (Other Than Commercial Items) (JUL 2004)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) clauses that are incorporated by reference:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-3, Convict Labor (June 2003) (E.O. 11755).

(ii) 52.222-21, Prohibition of Segregated Facilities (Feb 1999) (E.O. 11246).

(iii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iv) 52.225-13, Restrictions on Certain Foreign Purchases (Dec 2003) (E.o.s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

(v) 52.233-3, Protest After Award (Aug 1996) (31 U.S.C. 3553).

(2) Listed below are additional clauses that apply:

(i) 252.204-7003, Control of Government Personnel Work Product (Apr 1992)

(ii) 52.232-1, Payments (Apr 1984).

(iii) 52.232-11, Extras (Apr 1984).

(iv) 52.233-1, Disputes (Jul 2002).

(v) 252.243-7001 Pricing of Contract Modifications (Dec 1991)

(vi) 52.244-6, Subcontracts for Commercial Items (Jul 2004).

(vii) 52.253-1, Computer Generated Forms (Jan 1991).

(b) The Contractor shall comply with the following FAR and DFARS clauses, incorporated by reference, unless the circumstances do not apply:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (Jun 2004) (E.O. 13126). (Applies to contracts for supplies exceeding the micro-purchase threshold.)

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(ii) 52.222-20, Walsh-Healey Public Contracts Act (Dec 1996) (41 U.S.C. 35-45) (Applies to supply contracts over \$10,000 in the United States, Puerto Rico, or the U.S. Virgin Islands).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (Dec 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793). (Applies to contracts over \$10,000, unless the work is to be performed outside the United States by employees recruited outside the United States.) (For purposes of this clause, United States includes the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.)

(v) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (Dec 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).

(vi) 52.222-41, Service Contract Act of 1965, As Amended (May 1989) (41 U.S.C. 351, et seq.) (Applies to service contracts over \$2,500 that are subject to the Service Contract Act and will be performed in the United States, District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, Johnston Island, Wake Island, or the outer continental shelf lands).

(vii) 52.223-5, Pollution Prevention and Right-to-Know Information (Aug 2003) (E.O. 13148) (Applies to services performed on Federal facilities).

(viii) 252.225-7001, Buy American Act and Balance of Payments Program (Apr 2003) (Applies to all contracts for supplies unless an exception is authorized by DFARS 225.1101(2) (i) through (iv)).

(ix) 252.225-7013, Duty-Free Entry (Apr 2003) (Applies to all contracts for supplies except for those supplies that will not enter the customs territory of the United States).

(x) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (Oct 2003). (Applies when the payment will be made by electronic funds transfer (EFT) and the payment office uses the Central Contractor Registration (CCR) database as its source of EFT information.)

(xi) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (May 1999). (Applies when the payment will be made by EFT and the payment office does not use the CCR database as its source of EFT information.)

(xii) 252.247-7023, Transportation of Supplies by Sea (May 2002) Alternate III (May 2002) (Applies when transporting any supplies by sea under this contract.)

(2) Listed below are additional clauses that may apply:

(i) 52.204-7, Central Contractor Registration (Oct 2003) (Applies to all contracts unless an exception is authorized by FAR 4.1102(a).)

(ii) 252.204-7004, Alternate A (Nov 2003) (Applies if FAR 52.204-7 is applicable.)

(iii) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (July 1995) (Applies to contracts over \$25,000).

(iv) 52.211-5 Material Requirements (Aug 2000) (Applies to contracts for supplies that are not commercial items).

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(v) 52.211-17, Delivery of Excess Quantities (Sept 1989) (Applies to fixed-price supplies).

(vi) 252.225-7002, Qualifying Country Sources as Subcontractors (Apr 2003) (Applies if the contract is subject to the DFARS clause 252.225-7001, Buy American Act and Balance of Payments Program (see (b)(1)(viii) above)).

(vii) 52.243-1, Changes--Fixed Price (Aug 1987) (Applies to fixed-price contracts for supplies).

(viii) 52.243-1, Changes--Fixed Price (Aug 1987) Alter-nate I (Apr 1984) (Applies to fixed price contracts for services, other than architect-engineer or other professional services, and no supplies are to be furnished).

(ix) 52.243-1, Changes--Fixed Price (Aug 1987) Alter-nate II (Apr 1984) (Applies to fixed price contracts for services (other than architect-engineer services, transpor-tation, or research and development) and supplies are to be furnished).

(x) 52.243-1, Changes--Fixed Price (Aug 1987) Alter-nate V (Apr 1984) (Applies to fixed price contracts for research and development).

(xi) 52.247-29, F.o.b. Origin (Jun 1988) (Applies to supplies if delivery is f.o.b. origin).

(xii) 52.247-34, F.o.b. Destination (Nov 1991) (Applies to supplies if delivery is f.o.b. destination).

(xiii) 52.222-42, Statement of Equivalent Rates for Federal Hires (May 1989) (Applies if the contract amount is expected to be over \$2,500 and the contract is subject to the clause 52.222-41, "Service Contract Act of 1965, As Amended" (see (b)(1)(vi) above)).

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

This Statement is for Information Only:

It is not a Wage Determination

Employee Class	Monetary Wage--Fringe Benefits
_____	_____
_____	_____
_____	_____

(xiv) 52.246-11 Higher-Level Contract Quality Require-ment (Feb 1999) (Applies to contracts when the contracting officer finds it is in the Governments interest to require that higher-level quality standards be maintained and such standards are selected and identified in the clause).

The Contractor shall comply with the higher-level quality standard selected below. [If more than one standard is listed, the offeror shall indicate its selection by checking the appropriate block.]

	Title	Number	Date	Tailoring
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____
*	_____	_____	_____	_____

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[Contracting Officer insert the title, number (if any), date, and tailoring (if any) of the higher-level quality standards.]

(c) FAR 52.252-2, Clauses Incorporated by Reference (Feb 1998). This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

FAR clauses - <http://www.arnet.gov/far/>

DFARS clauses - <http://www.acq.osd.mil/dp/dars/dfars.html>

(d) Inspection/Acceptance. The Contractor shall tender for acceptance only those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. The Government must exercise its postacceptance rights--

(1) Within a reasonable period of time after the defect was discovered or should have been discovered; and

(2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(e) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence, such as acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(f) Termination for the Government's convenience. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges that the Contractor can demonstrate to the satisfaction of the Government, using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred that reasonably could have been avoided.

(g) Termination for cause. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any

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amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(h) Warranty. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(End of clause)

52.232-36 Payment by Third Party (May 1999)

(a) General. The Contractor agrees to accept payments due under this contract, through payment by a third party in lieu of payment directly from the Government, in accordance with the terms of this clause. The third party and, if applicable, the particular Governmentwide commercial purchase card to be used are identified elsewhere in this contract.

(b) Contractor payment request. In accordance with those clauses of this contract that authorize the Contractor to submit invoices, contract financing requests, other payment requests, or as provided in other clauses providing for payment to the Contractor, the Contractor shall make such payment requests through a charge to the Government account with the third party, at the time and for the amount due in accordance with the terms of this contract.

(c) Payment. The Contractor and the third party shall agree that payments due under this contract shall be made upon submittal of payment requests to the third party in accordance with the terms and conditions of an agreement between the Contractor, the Contractor's financial agent (if any), and the third party and its agents (if any). No payment shall be due the Contractor until such agreement is made. Payments made or due by the third party under this clause are not payments made by the Government and are not subject to the Prompt Payment Act or any implementation thereof in this contract.

(d) Documentation. Documentation of each charge against the Government's account shall be provided to the Contracting Officer upon request.

(e) Assignment of claims. Notwithstanding any other provision of this contract, if any payment is made under this clause, then no payment under this contract shall be assigned under the provisions of the assignment of claims terms of this contract or the Assignment of Claims Act of 1940, as amended, 31 U.S.C. 3727, 41 U.S.C. 15.

(f) Other payment terms. The other payment terms of this contract shall govern the content and submission of payment requests. If any clause requires information or documents in or with the payment request, that is not provided in the third party agreement referenced in paragraph (c) of this clause, the Contractor shall obtain instructions from the Contracting Officer before submitting such a payment request.

(End of clause)

Your quotation must include the following information:

Price list number and date

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or

Cost breakdown by direct labor (list categories, hours and pay rates). In addition to the direct rates, provide the applicable indirect information (G&A), overhead, facilities capital cost of money (FCCM) and profit.

or

Applicable General Services Administration (GSA) contract number.

If unable to quote FOB, Destination, please complete the following:

FOB Point \_\_\_\_\_

Estimated Shipping Charge \_\_\_\_\_

Business size:

Large \_\_\_\_\_ Small \_\_\_\_\_ Nonprofit \_\_\_\_\_

Cage Code \_\_\_\_\_

Tax Identification Number (TIN) \_\_\_\_\_

DUNNS \_\_\_\_\_

ELIGIBILITY REQUIREMENTS

All contractors and individuals doing business with the Federal Government must be registered at the Contractor Central Registration Database located at:  
<http://ccr.dlsc.dla.mil/>.

ELECTRONIC DISTRIBUTION OF CONTRACT DOCUMENTS

All contract award and contract modification documents will be distributed electronically using the Navy Air Force Interface (NAFI) system. The contractor's copy will be provided in portable document format (pdf) as an attachment to an e-mail that will be sent to the contractor by the NAFI system. A pdf file may be accessed using Adobe Acrobat Reader software. This is a free software that may be downloaded at:  
<http://www.adobe.com/products/acrobat/readstep.html>

Provide the following information that will be used to make electronic distribution for any resultant contract:

Name of Point of Contact to Receive  
Distribution \_\_\_\_\_

Phone Number for Point of Contact \_\_\_\_\_

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E-Mail Address for Receipt of Distribution \_\_\_\_\_

USE OF THE GOVERNMENTWIDE COMMERCIAL PURCHASE CARD

Will you accept the Governmentwide Commercial Purchase Card as a method of purchasing supplies and/or services.

\_\_\_\_\_ Yes \_\_\_\_\_ No

Will you accept the Governmentwide Commercial Purchase Card as a method of payment for your invoice.

\_\_\_\_\_ Yes \_\_\_\_\_ No

DUTY FREE ENTRY

Will any materials being shipped to the Government require a duty-free entry certificate for foreign supplies.

\_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, please include dollar amount \$ \_\_\_\_\_



**Technical Evaluation Criteria**  
for  
**Main Turbine Generator (MTG) Air Intake Ducting Pieces**

It is recommended to award this contract to the low price, technically acceptable offeror. Technical acceptability will be determined based on the following evaluation criteria:

1. **Technical Compliance:** In this factor, offerors shall provide preliminary drawings of the MTG Air Intake Ducting Pieces it intends to furnish and other information that demonstrates the ducting system pieces will comply with the requirements set forth in the MTG Air Intake Ducting Pieces Specification. Drawings provided with the quotation will allow the Government to evaluate the Contractor's understanding of the scope and requirements of this specification. The Government's award of a contract is not to be taken as acceptance of the proposal drawing as final. Detail drawings will be required following award.

In particular, the offeror must provide the following information (at a minimum):

- a. Outline drawings of the inlet ducting system components as described in the MTG Air Intake Ducting Pieces Specification and in Figures 1 thru 4 therein, showing all arrangements and dimensions.
- b. Cross-sectional views illustrating typical details of all elements of these ducting system components.
- c. Supporting calculations, as required.
- d. **Estimated Production Schedule:** The Contractor shall provide a schedule that shows the total number of days estimated from date of contract to major milestones. The Contractor may assume, for purposes of estimating, that review and commenting on engineering submittals will require two (2) weeks. Milestones should include but not necessarily be limited to:
  - 1) Engineering submittals
  - 2) Receipt of materials
  - 3) Fabrication Start
  - 4) Fabrication complete
  - 5) Complete preparation for shipping
  - 6) Delivery

2. **Corporate Experience:** In this factor, offerors shall provide information on their experience in the design, fabrication, and manufacture of circular, rectangular and transitional ducting including acoustically lined components. Offerors shall also furnish information on their manufacturing facilities, equipment, inspection/quality system and other resources that demonstrate they possess the necessary capability to furnish the required MTG Air Intake Ducting Pieces.

**Purchase Specification  
For  
Gas Turbine Generator Air Intake Ducting System**

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## 1.0 Introduction

- 1.1 This specification establishes the requirements for the design, manufacture, and delivery of four sections of air intake ducting to be installed in an existing (modified) air intake system for a Gas Turbine Test Site at the Naval Surface Warfare Center, Carderock Division, Ship Systems Engineering Station (NSWCCD-SSES), Philadelphia, PA. The air intake system, as modified with the components required by this specification is shown in Figure 1.
- 1.2 Each of the system's components, specified herein, shall be fabricated, assembled, and shipped in as much a complete unit as possible.
- 1.3 All components described in this specification must be designed to be structurally and thermally adequate to withstand the lifting and handling, load conditions and operating conditions as described in this specification.
- 1.4 The Air Intake Ducting System is to be delivered to NSWCCD-SSES no later than 16 weeks after Date of Contract.

## 2.0 Scope

### 2.1 Equipment and Services to be provided by the Contractor:

- 2.1.1 The Contractor shall be responsible for delivery of each of the following to NSWCCD-SSES in Philadelphia (installation by others). Each item is to be made in accordance with the specifications provided herein and in accordance with the relevant Figures listed below:

Item	Qty	Description
0001	1	Air Intake Acoustically Lined Duct Transition Piece (Figure 2)
0002	1	Air Intake Unlined Duct (Figure 3)
0003	1	Air Intake Unlined Duct Spool with one loose flange for field fit-up (Figure 3)
0004	1	Air Intake Bellmouth (Figure 4)
0005	1 Lot	Final detail outline drawings, section drawings and calculations required by Release for Manufacture Documentation (Section 6.0)
0006	1 Lot	Bolting hardware & gaskets
0007	1	Completed QA Plan (Section 5.3)

- 2.1.2 The Contractor shall be responsible for providing all intake ducting system components as specified herein including all bolting hardware and gasketing to make-up the flange joints. The contractor shall provide 10% extra on all bolting hardware and one spare gasket for each gasketed joint, except for the gasketed joint at the measurement section interface.

The contractor shall provide five spare gaskets for the gasketed joint at the measurement section interface.

- 2.1.3** The Contractor shall be responsible for the design, procurement of materials, fabrication, cleaning, surface preparation, painting, packaging and shipping of all items included in this specification. The Contractor shall assume the responsibility of the product in transit.
- 2.1.4** The Contractor shall size and provide the appropriate gaskets for all flange joints. Thermal expansion is to be considered when sizing gaskets.
- 2.1.5** The design of structural steel shall be in accordance with the specification of the American Institute of Steel Construction, latest edition, except where modified by local government regulations or Government's special requirements. Modifications for local government regulations or Government's special requirements shall be made only if they exceed the requirements of the Codes.
- 2.1.6** All ducting component sections shall have hardened lift points to allow lifting and movement. These lift points shall be designed where possible to lift through the system component center of gravity. Temporary shoring shall be designed, manufactured, and provided with the duct components to facilitate movement. Where the integral strength of a component section will not allow free standing storage, storage stands shall be designed, manufactured and provided. All design drawings and hardware shall have centers of gravity calculated and clearly marked. Where the component sections have been made symmetrical, lift points shall be made on both sides of the mirroring section feature.
- 2.1.7** The Contractor shall be responsible for the accuracy of its designs and full conformance to the requirements presented in this specification. Approval of any drawings, calculations and/or tests by the Government shall not relieve the Contractor from these responsibilities.
- 2.1.8** Nothing in this specification shall relieve the Contractor of the responsibilities for performing, in addition to the requirements of this specification, such analyses which the Contractor considers necessary to insure that the design, material, and workmanship are satisfactory for the service intended, or as may be required by common usage and/or good practice.
- 2.1.9** The Contractor shall maintain all hereafter-specified data and records. These will be delivered to the Government after the work has been accepted.

- 2.1.10** The Contractor shall establish and maintain a system for the control of quality during manufacture and examination, which will insure that all components and assemblies furnished under this specification meet requirements hereinafter specified.
- 2.1.11** The Contractor shall provide all necessary and incidental labor, materials, tools, equipment and services which must be employed to satisfy the requirements stated in this specification.
- 2.1.12** The Contractor shall provide, for review and approval, all of the data requirements described in this specification, including the complete and detail drawings for all equipment and work under this specification.
- 2.1.13** The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) will be supported by its upstream flange connection to the existing intake ducting. There shall be no other supports to existing site structure.
- 2.1.14** The Air Intake Unlined Duct (Item 0002) shall have two supports located as shown on Figure 3. Supports are to be designed by Contractor to fully support the weight of the Air Intake Unlined Duct (Item 0002) and the Air Intake Unlined Duct Spool Piece (Item 0003) without transmitting loads to other components in the duct system. The Air Intake Bellmouth (Item 0004) shall be supported by the existing Filter House.
- 2.1.15** The Contractor shall fabricate at his facility and ship the ducting pieces described below to the location specified herein. The ducting pieces shall be ready in all respects for installation into the gas turbine generator air intake system. The only remaining work required by the erector to install the duct pieces shall be:
- Align Air Intake Lined Duct Transition Piece (Item 0001) between the measurement section (above the gas turbine's flexible joint) and existing ducting.
  - Align Air Intake Bellmouth (Item 0004) to the existing Filter House
  - Align Air Intake Unlined Duct (Item 0002) and the Air Intake Unlined Duct Spool (Item 0003) between the Air Intake Bellmouth (Item 0004) and the existing inlet duct.
  - The Air Intake Unlined Duct Spool (Item 0003) will be cut to field-fit by others and the "furnished loose" flange will be welded to the cut end of the 61.5" I.D. unlined spool prior to final alignment (also by others)
  - Install the required gaskets and fasteners at each flange
  - Install the pressure and temperature sensing instruments at the instrumentation connections on the duct pieces provided by the Contractor

- Install electrical grounding cables, as required.

## **2.2 Equipment and Services to be provided by the Government:**

- 2.2.1** The Government will unload at the site, store and erect all items furnished by this specification.
- 2.2.2** The Government will provide a flexible joint and a measurement section between the ducting and the gas turbine at the time of erection of the Air Intake Acoustically Lined Duct Transition Piece (Item 0001) furnished by this specification.
- 2.2.3** The Government will modify the existing Filter House to accept the Air Intake Bellmouth (Item 0004).
- 2.2.4** The Government will provide and install pressure and temperature sensing instruments at the instrumentation connections in the Acoustically Lined Duct Transition Piece (Item 0001) following erection.
- 2.2.5** The Government will provide grounding cables, as required, following erection.

## **3.0 Applicable Documents**

- 3.1** The following specifications, standards, and codes, latest edition, form a part of this specification. The design of the items identified in this specification shall be in strict compliance with all applicable sections herein.

### **3.2 Referenced Specifications, Standards, and Codes**

- 3.2.1** American Society of Civil Engineers (ASCE), Standard 7-02 "Minimum Design Loads for Buildings and Other Structures"
- 3.2.2** American Welding Society (AWS), Standards D1.1 "Structural Welding Code – Steel", D9.1 "Sheet Metal Welding Code", and D10.12 "Guide for Welding Mild Steel Pipe"
- 3.2.3** American Institute of Steel Construction, Inc. (AISC), ASD 9<sup>th</sup> Edition
- 3.2.4** American Iron and Steel Institute (AISI)
- 3.2.5** American Society for Testing and Materials (ASTM), Standards A36, A105, A106, A176, A181, A240, A325, and A563
- 3.2.6** American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 52-76



- 3.2.7 American National Standards Institute (ANSI), Standards B1.20.1 "Pipe Threads, General Purpose (Inch)", B16.11 "Forged Fittings, Socket-Welding and Threaded", B16.5 "Steel Pipe Flanges and Flanged Fittings"
- 3.2.8 Steel Structures Painting Council (SSPC)
- 3.2.9 International Building Code, 2003
- 3.2.10 Department of Transportation (DOT), CFR 49
- 3.2.11 Occupational Safety and Health Agency (OSHA), Part 1910 "Standards Improvement (Miscellaneous Changes) For General Industry and Construction Standards"
- 3.2.12 American National Standards Institute (ANSI)/American Society for Quality Control (ASQC), Section Q, "Quality Systems - Model for Quality Assurance in Production and Installation"

## **4.0 Technical Requirements**

### **4.1 General**

- 4.1.1 The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) will be connected between a gas turbine inlet measurement section (supplied by the government) and existing ducting.
- 4.1.2 The Air Intake Bellmouth (Item 0004) will be connected to the existing Filter House. The Air Intake Unlined Duct (Item 0002) and the Air Intake Unlined Duct Spool (Item 0003) will be connected together and fitted between the Air Intake Bellmouth (Item 0004) and existing ducting. The Air Intake Unlined Duct Spool (Item 0003) is designed approximately 4 inches long and will be measured and cut to fit in the field.
- 4.1.3 Site Conditions:
  - 4.1.3.1 Location: Indoor
  - 4.1.3.2 Ambient Temperature Range: -5°F to 105°F (outside air)
  - 4.1.3.3 Relative Humidity Range: 05% to 100% (outside air)
  - 4.1.3.4 Altitude: Approx. 33 ft. above mean sea level
- 4.1.4 Design Load Conditions

- 4.1.4.1 Erection: Dead load plus seismic load.
- 4.1.4.2 Normal Operating: Dead load, plus dynamic load (live load) resulting from operating conditions specified in Section 4.1.5, plus seismic.
- 4.1.4.3 Allowable unit stresses shall be stipulated per 3.2.3 except where modified by local requirements.

#### 4.1.5 Operating Conditions

- 4.1.5.1 The maximum inlet gas flow rate is 248 lbs/sec at 100°F at 10 inches WG below atmosphere conditions.
- 4.1.5.2 The intake duct shall be designed to withstand pressure pulses resulting from engine surge. The pressure pulses are defined as a 50 kPa pressure spike over operating static pressure with a 2-3 msec rise.

#### 4.2 Arrangement

- 4.2.1 The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) shall be designed in accordance with the arrangement depicted in Figure 2. The Air Intake Unlined Duct and Spool Piece (Items 0002 and 0003) shall be designed in accordance with the arrangement depicted in Figure 3. The Air Intake Bellmouth (Item 0004) shall be designed in accordance with the arrangement depicted in Figure 4.
- 4.2.2 Construction shall be such that no gaps or leaks occur in the assembly.
- 4.2.3 Lift points (eyes) shall be provided to permit loading, unloading, and erection.
- 4.2.4 The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) shall be supported by its top flange to the existing ducting, shall also support the weight of the 6" long gas turbine inlet measurement section (provided by the Government), and shall transmit no force to the gas turbine inlet flexible expansion joint (also provided by the Government). Air Intake Unlined Duct (Item 0002) and the Air Intake Unlined Duct Spool (Item 0003) shall be supported in the locations shown on Figure 3. The supports are to be sufficient to support the entire weight of the Air Intake Unlined Duct (Item 0002) and the Air Intake Unlined Duct Spool (Item 0003). The Air Intake Bellmouth (Item 0004) shall be supported by the existing Filter House.

- 4.2.5** The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) shall have a hinged, latched personnel access panel. Hinges shall be positioned vertically if possible.
- 4.2.6** The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) shall have ¼" connections for pressure and temperature instrumentation as shown in Figure 2. The Air Intake Unlined Duct (Item 0002) shall have ¼" connections for pressure instrumentation as shown in Figure 3.

### **4.3 Tolerances**

- 4.3.1** Tolerances shall be in accordance with the following:

- 4.3.1.1** Ducting Tolerances

- 4.3.1.1.1** Square Ducting shall maintain diagonal squareness of  $\pm 1/8$  inch.
    - 4.3.1.1.2** Round Ducting shall maintain the required diameter within  $\pm 1/8$  inch.
    - 4.3.1.1.3** All linear dimensions shall be  $\pm 1/8$  inch.

- 4.3.1.2** Flange Tolerances:

- 4.3.1.2.1** Flatness of flanges shall be held within a tolerance of  $\pm 1/8$  inch. Contractor shall insure that flanges will not be distorted due to the torque of bolts.
      - 4.3.1.2.2** Flanges shall maintain parallelism or perpendicularity, as applicable, within a total tolerance of  $\pm 1/8$  inch.
      - 4.3.1.2.3** Square Flanges shall maintain diagonal squareness of  $\pm 1/8$  inch.
      - 4.3.1.2.4** Round Flanges shall maintain the required diameter within  $\pm 1/8$  inch.
      - 4.3.1.2.5** Location of all holes shall be held to a true position of  $\pm 1/16$  inch diameter circle.

Note – Air Intake Duct Pieces (Items 1 thru 4) shall be designed for use with ¼" thick neoprene gaskets, which are expected to have an installed thickness of ⅛" after ducting assembly.

#### 4.4 Materials and Processes

- 4.4.1 The outer shell of the Air Intake Ducting System shall be fabricated from 3/16" thick ASTM A36 carbon steel plate. The end flanges shall be 3/8" thick (min) ASTM A36 Carbon Steel. Welding shall be in accordance with AWS D1.1. All exterior duct welds are seal welds.
- 4.4.2 The inlet ducting system design shall minimize the need for bolts, nuts or any type connector that can become loose and be carried in the air system. Any such fasteners used will be welded or permanently locked in place to ensure they will not loosen and be carried into the compressor.
- 4.4.3 The inside duct walls of the carbon steel Air Intake Acoustically Lined Duct Transition Piece (Item 0001) shall be lined with 4" thick, 6 pounds per cubic foot, mineral wool insulation. Tape shall be used in insulation pillows, not staples. No parts shall be used in installing the insulation that can work their way free through the stainless steel liner (see paragraph 4.4.4, below) into the interior of the duct piece over time.
- 4.4.4 A 16 gauge, perforated, ASTM A 240, type 304, stainless steel interior liner shall be installed inside the insulation. Stainless steel surfaces shall not be painted. The inner liner shall be free to expand and contract with changes in the outside ambient air temperature, independent of the outer shell of the duct.
- 4.4.5 Welding on the inner liner shall be in accordance with paragraph 3.2.2 above. No weld spatter is allowed inside the intake duct stainless steel liner. TIG welding of the liner shall be used if required. Other methods of fastening inner liner may be used if approved by the Government.
- 4.4.6 Flanges shall be bolted with ASTM A-325, Grade-5, zinc plated hex head bolts with ASTM A-563, Grade-DH hex nuts and flat circular washers.
- 4.4.7 Surface Preparation and Painting
  - 4.4.7.1 Carbon steel surfaces (interior and exterior) shall be cleaned in accordance with SSPC-SP6 (3.2.8 above), Commercial Blast Cleaning. Dust and blast products shall be removed from the surface of sandblasted steel by high pressure air or vacuum cleaning.
  - 4.4.7.2 Paint all Carbon Steel interior and exterior surfaces with one shop coat of Carbo-Zinc HS-11 (Green) paint, 3.0 to 5.0 mils dry film thickness. The Air Intake Acoustically Lined Duct Transition Piece

(Item 0001) should be painted prior to the installation of the insulation and stainless steel liner.

- 4.4.7.3** Paint all Carbon Steel Duct interiors with one finish coat 890 Epoxy Finish (Gloss Green #9351), 3.0 to 5.0 mils dry film thickness. The Air Intake Acoustically Lined Duct Transition Piece (Item 0001) should be painted prior to the installation of the insulation and stainless steel liner.

## **5.0 Technical Data**

### **5.1 Drawings**

Final detail outline and section drawings are to be submitted and approved by the Government prior to proceeding with any fabrication work. These drawings are required to include materials, dimensions, tolerances, surface finishes (where applicable), welding details, instrument tap details, rigging features, weight and center of gravity data, flange details, bolting, and support details and loads. Review and comment of final drawings will be provided 14 days after receipt of the drawing package by the Government.

### **5.2 Calculations**

Calculations for support reactions and the structural adequacy of the intake system components are to be submitted and approved by the Government prior to proceeding with fabrication.

### **5.3 Quality Assurance Plan**

A completed Quality Assurance plan in accordance with the requirements of ANSI/ASQC Section Q. This shall include work procedures performed by the Contractor or his contractor for the following:

- 5.3.1** Manufacturing and processing procedures
- 5.3.2** Inspection checklist or program
- 5.3.3** Cleaning procedures
- 5.3.4** Painting procedures
- 5.3.5** Shipping procedures
- 5.3.6** Repair welding procedures
- 5.3.7** Quality assurance checklist

## **6.0 Release For Manufacture**

- 6.1** The Government will provide a release for manufacture to the Contractor following approval of the final drawings and calculations by the Government. See paragraph 5.1 and 5.2 above.

## **7.0 Inspection and Testing**

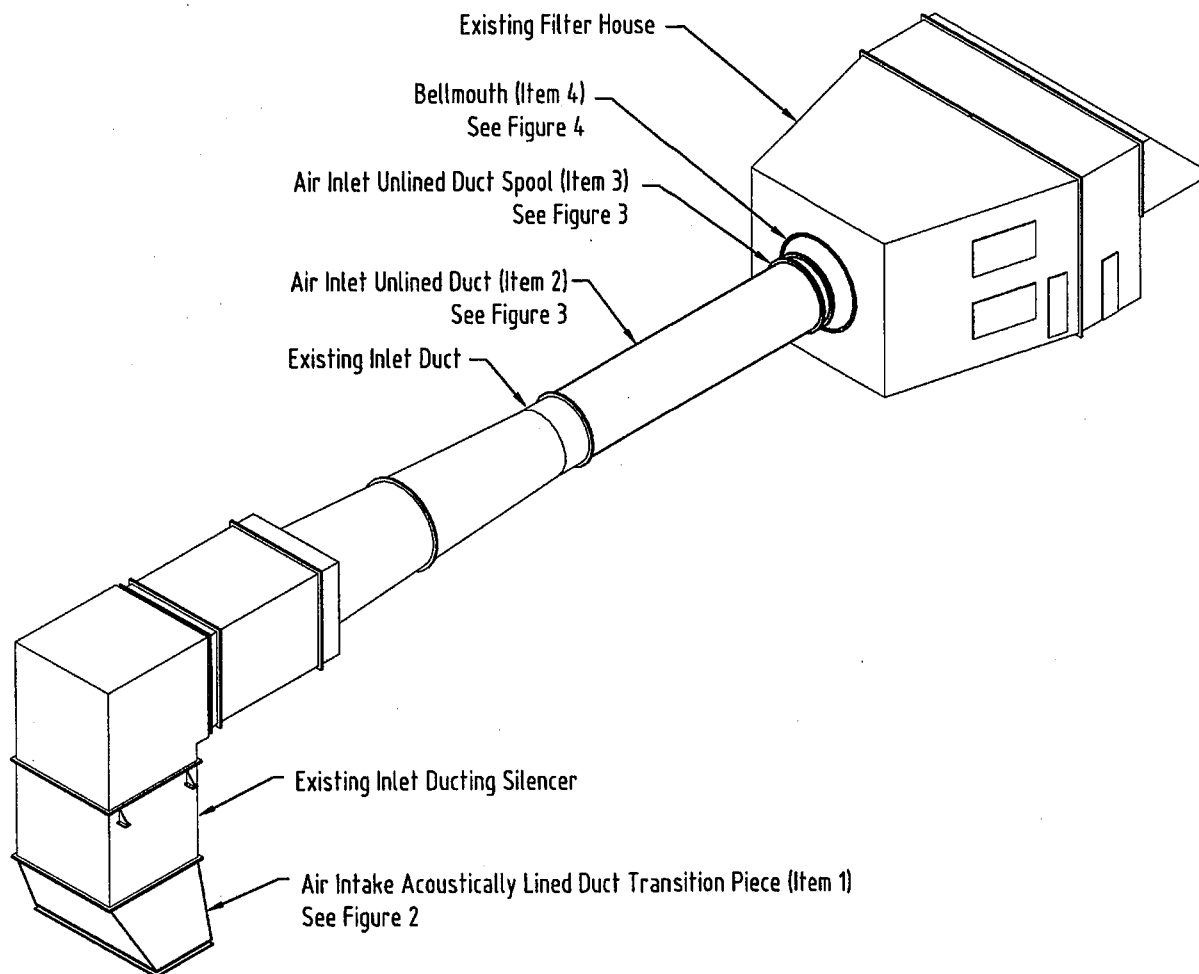
- 7.1** The Contractor shall notify the Government two weeks prior to the shipping date for the air intake ducting pieces. The Government reserves the right to conduct an in-plant inspection of the pieces prior to packaging for shipment.

## **8.0 Shipping**

### **8.1 Packaging**

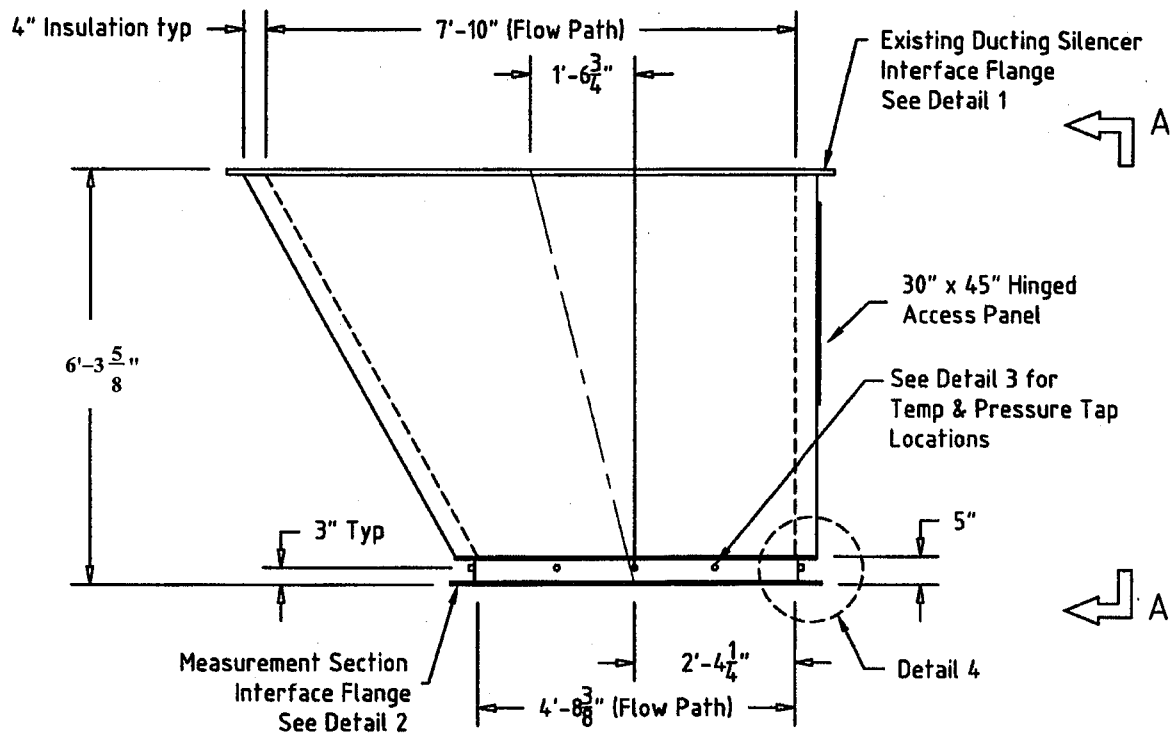
- 8.1.1** Equipment shall be packed for shipping in a manner that will ensure acceptance and safe delivery at destination. Supplier is responsible for damage during shipment.
- 8.1.2** Each package shall be marked with the Contract Number, Contract Item Number and Purchase Specification Number TS050-04.

**8.2 Shipping Address:** Naval Surface Warfare Center  
Carderock Division  
Ship Systems Engineering Station  
901 Admiral Peary Way  
Naval Business Center  
Philadelphia, Pa 19112  
Attn: Howard Feinstein, Code 9112  
Phone: (215) 897-8895  
Cell: (215) 837-1787

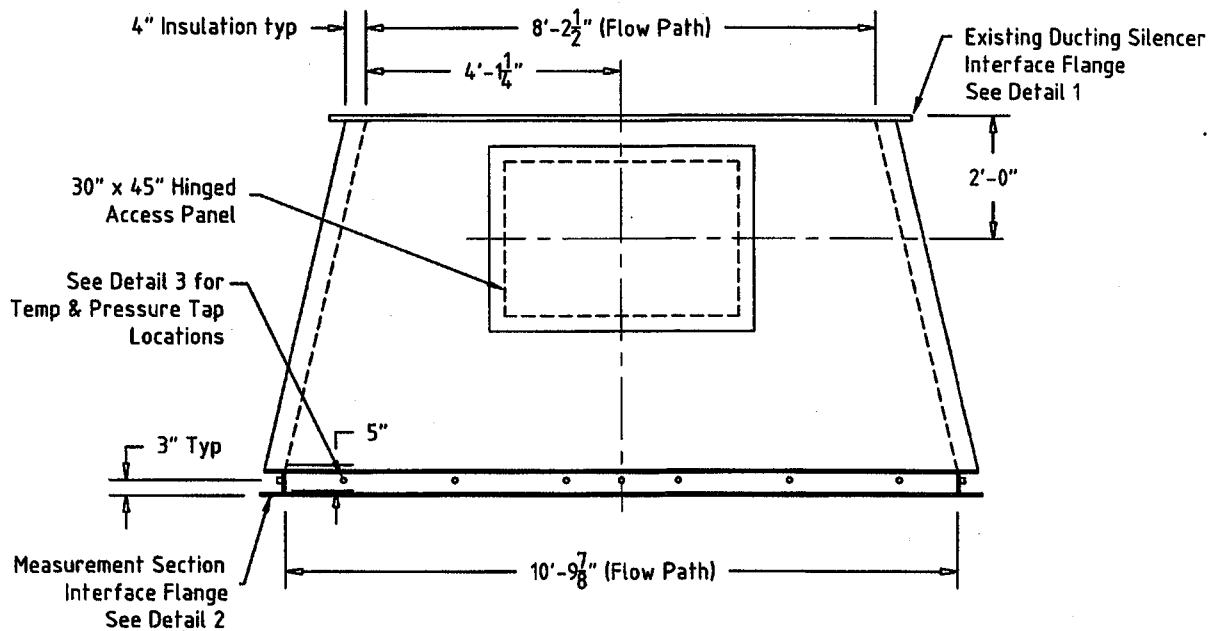


**FIGURE 1**

# Inlet Duct System Isometric



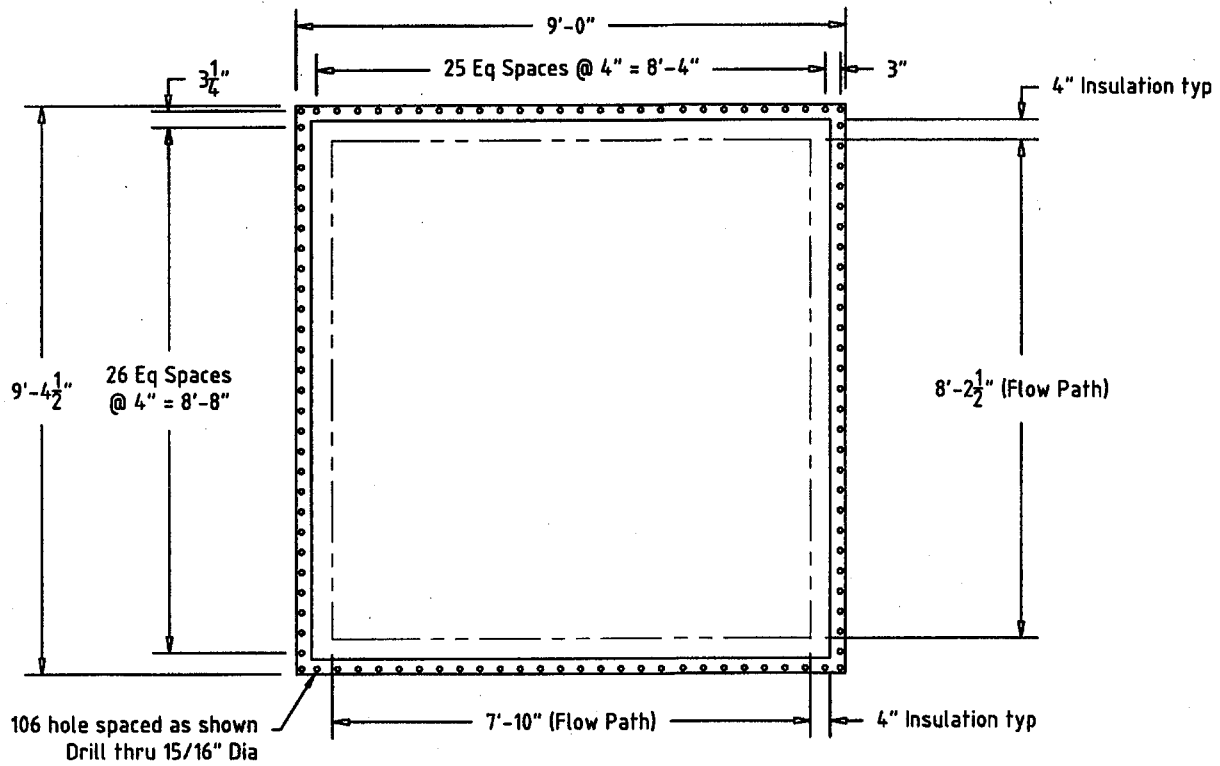
**FIGURE 2**  
Air Intake Acoustically Lined Duct Transition Piece





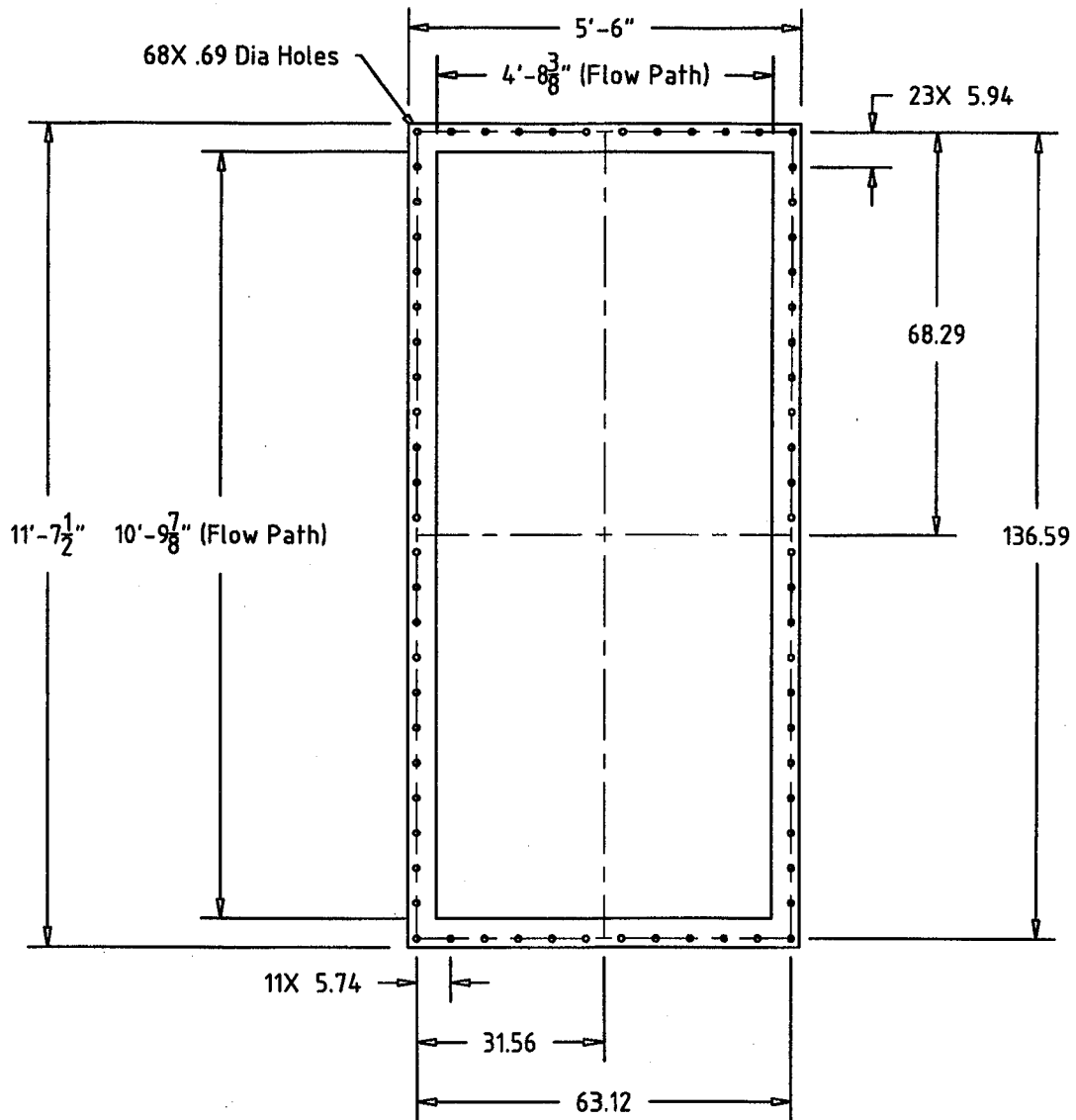
**VIEW A-A**

**Air Intake Acoustically Lined Duct Transition Piece (Side View)**

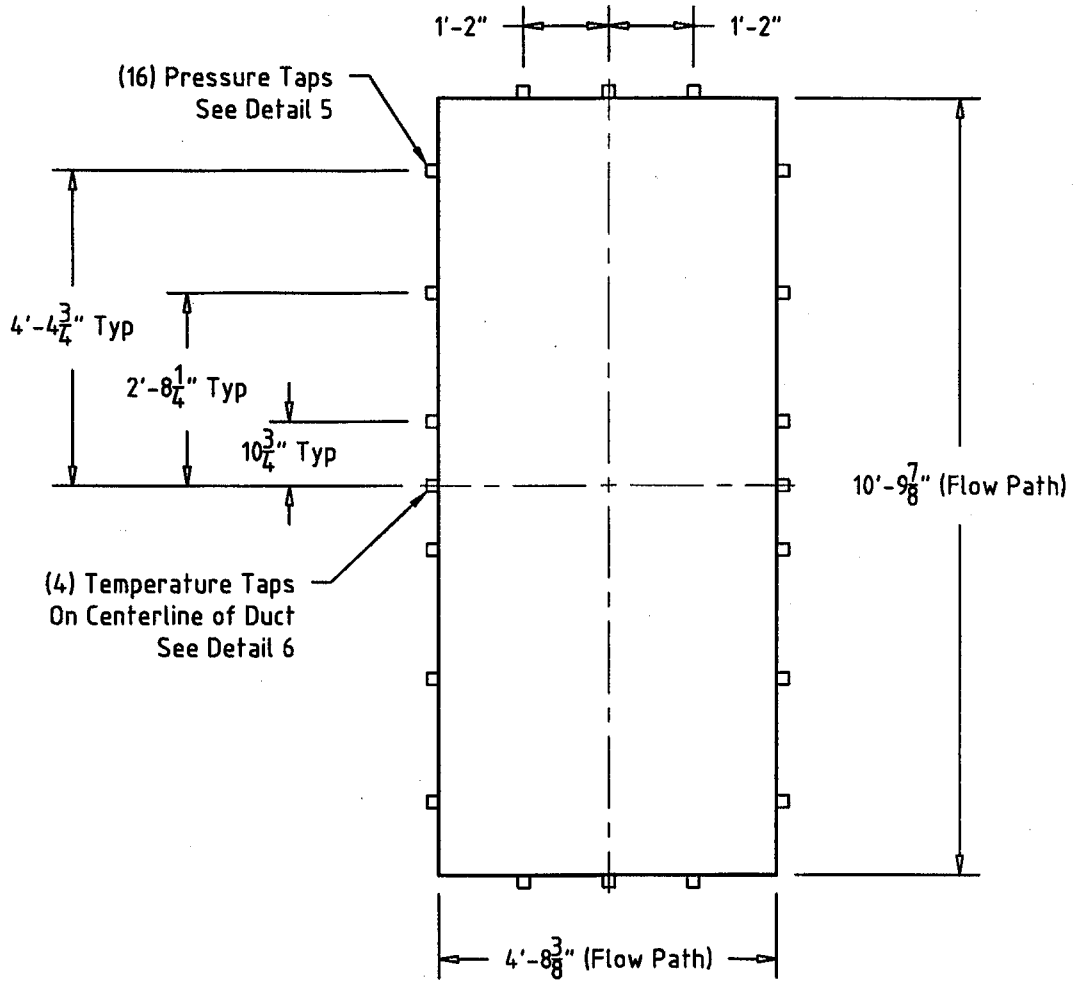


**DETAIL 1**

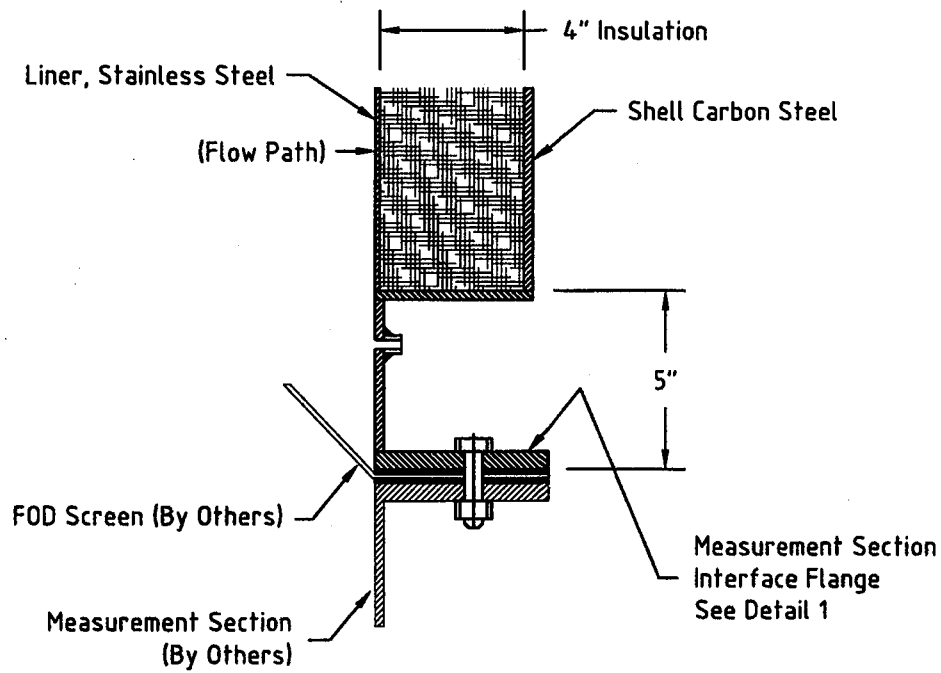
**Air Intake Acoustically Lined Duct Transition Piece  
Silencer Interface Flange**



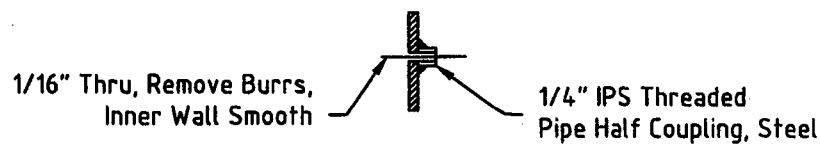
**DETAIL 2**  
Air Intake Acoustically Lined Duct Transition Piece  
Measurement Section Interface Flange



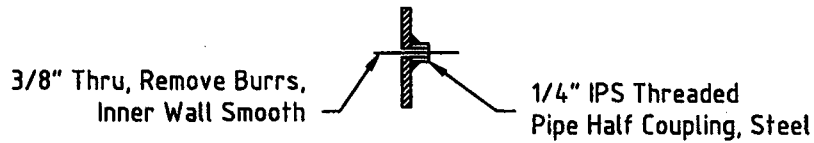
**DETAIL 3**  
Air Intake Acoustically Lined Duct Transition Piece  
Pressure and Temperature Tap Locations



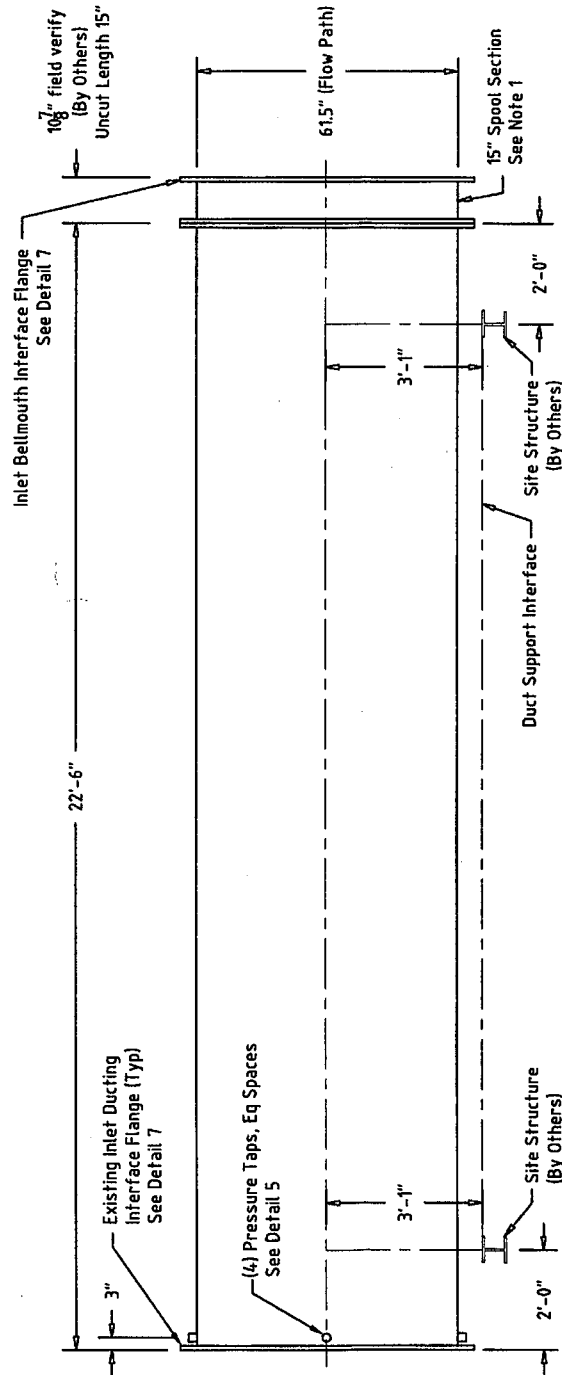
**DETAIL 4**  
Air Intake Acoustically Lined Duct Transition Piece



**DETAIL 5**  
Pressure Connection Detail



**DETAIL 6**  
Temperature Connection Detail

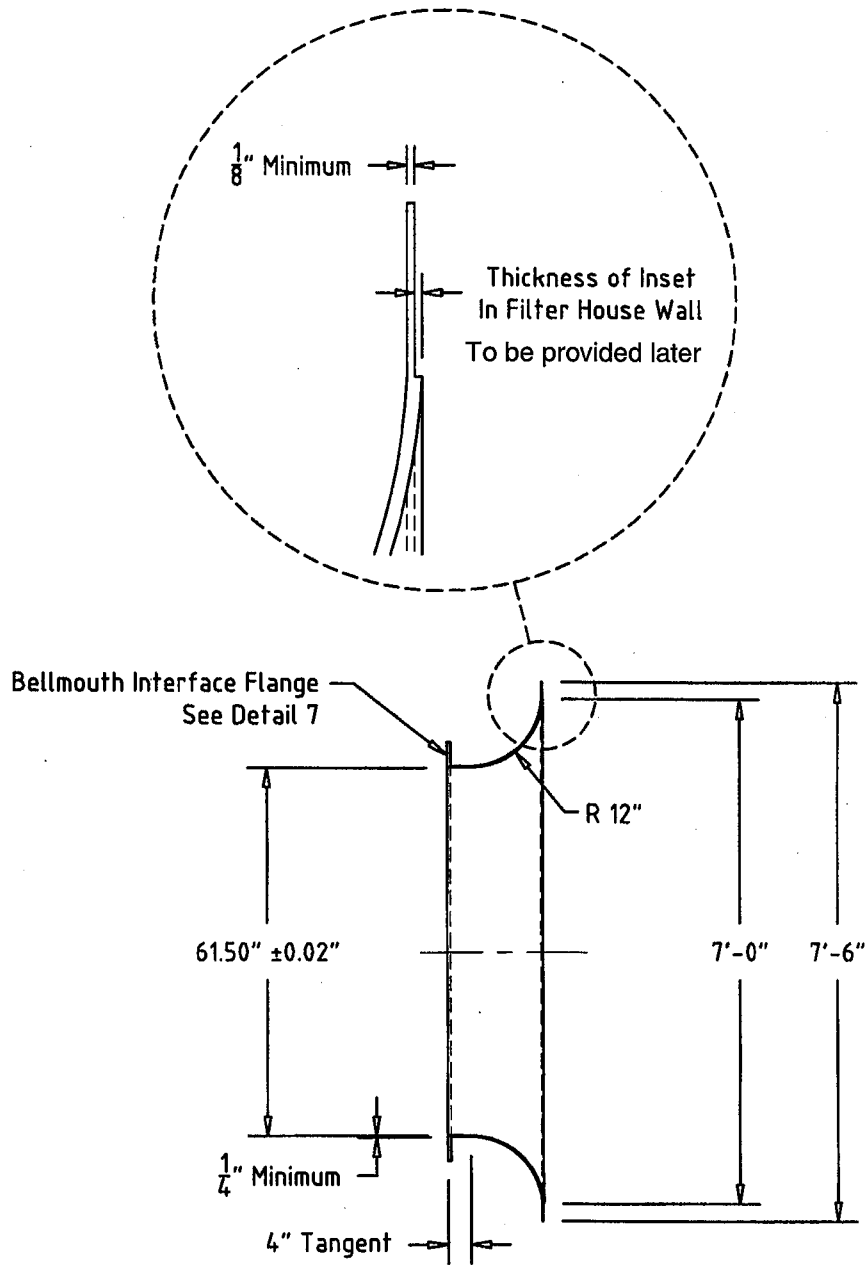


**FIGURE 3**

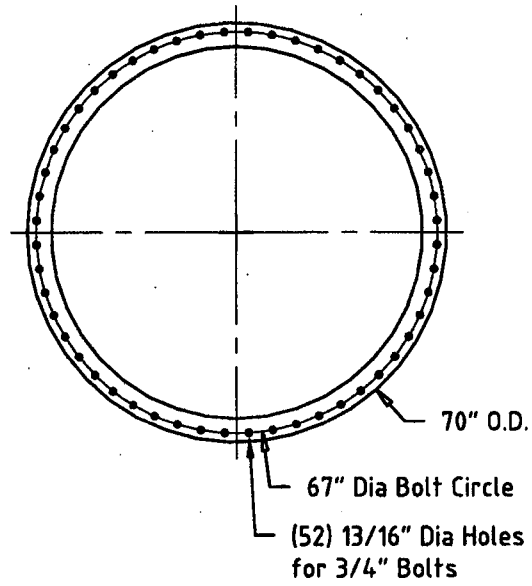
Air Intake Unlined Duct & Air Intake Unlined Duct Spool with  
One Loose Flange for Field Fit-Up

Notes:

- 1) 15" Spool Section of ducting shall have the mating flange for the bellmouth shipped loose until final field fit-up. The Government shall field verify the actual length of the spool section during installation, prior to cutting and welding-on the shipped loose flange.



**Figure 4**  
Air Intake Bellmouth



**DETAIL 7**  
Air Intake Unlined Duct Flange / Bellmouth Flange